

5.6 BIOLOGICAL RESOURCES

The PEC is a proposed nominal 400-megawatt (MW) peaking facility consisting of four (4) General Electric LMS100 natural gas-fired combustion turbine generators, emissions control equipment, one cooling tower, and process water treatment equipment and other associated equipment. The PEC site is to be located in a pomegranate orchard adjacent to the southwest corner of the existing Panoche Substation in Fresno County (refer to Figure 5.6-1). The plant site is approximately 12.8 acres and the laydown area is approximately 8 acres adjacent to the south side of the PEC site. The site is approximately 2 miles east of Interstate 5, southeast of the intersection of West Panoche Road and Davidson Avenue, off the alignment of Davidson Avenue. Facilities associated with the project include the electric transmission line, natural gas supply line, water supply and discharge wells, access road improvements, and site drainage improvements. The electric transmission line will connect to the 230kV bus at the adjacent PG&E Panoche Substation. The natural gas supply line is an approximately 2,400-foot branch from the main north-south PG&E Line 2 that parallels Interstate 5.

The existing biological resources within the study area and within a 1-mile radius around the plant site are the subject of this section. In addition, the potential impacts to biological resources as a result of the proposed project are assessed. Refer to Figure 5.6-2 for a map of the project site and vicinity with identification of any biological resources within a 1-mile radius of the site.

5.6.1 Affected Environment

The proposed project site was historically a sagebrush and native grass covered arid landscape. Dense riparian vegetation grew only along the banks of the area's few creeks (JRP Historical Consulting, 2006). As a result of heavy agricultural and industrial use in the area, no native vegetation is present within the study area or vicinity. The plant site and laydown area are located within an active pomegranate orchard. The existing Panoche Substation is adjacent to the northern corner of the PEC site. Panoche Road is to the north and the remainder of the site is surrounded by agriculture primarily consisting of apricot and pomegranate trees.

5.6.1.1 Survey Methods

Biological field surveys were conducted by a URS biologist on April 21, 2006 according to the CEC regulations (CEC, 2000). The "project area" is defined as the area that could potentially be directly disturbed during project construction, and includes the power plant site, construction laydown and parking areas, electric transmission line, access road, substation expansion, and natural gas line. The "project survey area" includes the project area and a buffer of a 1-mile radius surrounding the PEC where field surveys were conducted for botanical and wildlife resources.

Prior to conducting field surveys a review of literature was performed including a search of the California Native Plant Society (CNPS) Inventory of Rare Plants Database and California Natural Diversity Database (CNDDB) in order to determine special-status species known to occur or that could potentially occur within the project survey area. The following USGS 7.5-minute quadrangles were searched for records of special-status species: Hammonds Ranch, Broadview Farms, Firebaugh, Chounet Ranch, Chaney Ranch, Coit Ranch, Tumey Hills, Monocline Ridge, and Levis quadrangle. The project survey area is within the Chaney Ranch, and all of the surrounding quadrangles were searched (see Figure 5.6-1).

The reconnaissance field survey included walking transects through the proposed plant site and construction laydown and parking areas and visually scanning areas within the 1-mile buffer (see Figure 5.6-2). All botanical and wildlife species observed were documented, and all plant communities and habitat that could support potentially occurring special-status species listed in Table 5.6-1 were described. All plant and wildlife species observed during the survey within the project and buffer areas are listed in Table 5.6-2. Plant nomenclature follows Hickman (1993). The survey was conducted by URS biologist Johanna LaClaire under the supervision of URS senior biologist Dr. Patrick Mock. Appendix N includes copies of the biologists' resumes.

5.6.1.2 Plant Communities

No native plant communities are present within the project survey area. The only vegetation present was pomegranate trees and scattered ruderal vegetation (covering less than 5 percent of the area) in the understory of the pomegranate trees. The only native plant species observed was miner's lettuce (*Claytonia perfoliata*). Vegetation within the buffer area was similar except some areas had apricot trees instead of pomegranate trees. Personnel tending the orchards regularly apply herbicide to manage weeds. Vegetation present within the proposed power plant site is similar to the construction laydown and parking areas.

5.6.1.3 Wetlands

No wetlands are present within the project study area. There is an east west trending drainage ditch just outside of the northeast portion of the project area between the project area and Panoche substation that was dry during the field survey. Another drainage containing water runs north-south parallel to the east side of Davidson Avenue. Only ruderal vegetation was present along these drainages. These drainages were created for agricultural use and are not jurisdictional waters of the U.S. according to Army Corp of Engineers (USACOE) or California Department of Fish and Game (CDFG). Panoche Creek is 2 miles north of the project area. The California Aqueduct is approximately 2.7 miles to the east of the project area. The nearest blue line stream is 1.66 miles to the southwest with headwaters at the Tumey Hills.

**TABLE 5.6-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING AT THE PEC SITE**

Common Name	Scientific Name	Status ¹	Occurrence
Wildlife			
Blunt-nosed leopard lizard	<i>Gambelia sila</i>	FE, SE	Last documented in the area in 1993
Swainson's hawk	<i>Buteo swainsonii</i>	FT	Last official documentation in the area in 2005
Short-eared owl	<i>Aseo flammeus</i>	CSC	Last official documentation in the area in 1993, however this species often goes undocumented by observers
Horned lark	<i>Eremophila alpestris</i>	CSC	Last official documentation in the area in 1992, however this species often goes undocumented by observers
Tulare grasshopper mouse	<i>Onychomys torridus tularensis</i>	FSC	Last documented in the area in 1955
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	FE, SE	Last documented in the area in 1999

¹ U.S. Fish and Wildlife Service (Federal)

FE = Endangered (In danger of becoming extinct throughout all or a significant portion of its range.)

FT = Threatened (Likely to become endangered in the foreseeable future in the absence of special protection.)

FC = Federal Candidate (Candidate for FT or FE listing.)

FSC = Species of Concern (Sufficient information exists which warrants concern over that species' status and warrants study.)

California Department of Fish and Game (State)

SE = Endangered (In danger of becoming extant throughout all or a significant portion of its range.)

SC = State Candidate (Candidate for SE or State Threatened [likely to become endangered in the foreseeable future in the absence of special protection.])

CSC = Species of Concern (Information exists which warrants concern over that species' status and warrants study.)

5.6.1.4 Wildlife Community

The PEC and adjacent areas provide limited habitat for few wildlife species due to high agricultural use in the area. Sixteen species of birds were observed during the field survey. Typical species observed include western kingbird (*Tyrannus verticalis*), red-tailed hawk (*Buteo jamaicensis*), American goldfinch (*Carduelis tristis*), and American pipit (*Anthus rubescens*), but none of the birds detected are sensitive at a state or federal level. Raptors are protected by CDFG. Most of the species detected, such as house finch (*Carpodacus mexicanus*), brown-headed cowbird (*Molothrus ater*), killdeer (*Charadrius vociferus*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), American crow (*Corvus brachyrhynchos*), morning dove (*Zenaida macroura*), cliff swallow (*Petrochelidon fulva*), Brewer's blackbird (*Euphagus cyanocephalus*), and Northern mockingbird (*Mimus polyglottus*), are typically found in disturbed/developed areas. Some breeding activity was observed, including morning doves that were breeding in the pomegranate trees, cliff swallows with nests at the top of the water tank at the southeast corner of the orchard outside of the project area, and an active red-tailed hawk nest in the transformer towers at the

TABLE 5.6-2
PLANT AND WILDLIFE SPECIES OBSERVED
DURING FIELD SURVEY

Common Name	Scientific Name
BIRDS	
Turkey vulture	<i>Cathartes aura</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Killdeer	<i>Charadrius vociferus</i>
Mourning dove	<i>Zenaida macroura</i>
Western kingbird	<i>Tyrannus verticalis</i>
American crow	<i>Corvus brachyrhynchos</i>
European starling	<i>Sturnus vulgaris</i> *
Northern mockingbird	<i>Mimus polyglottos</i>
Cliff swallow	<i>Petrochelidon pyrrhonota</i>
House sparrow	<i>Passer domesticus</i> *
American pipit	<i>Anthus rubescens</i>
American goldfinch	<i>Carduelis tristis</i>
House finch	<i>Carpodacus mexicanus</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Brown-headed cowbird	<i>Molothrus ater</i>
PLANTS	
Amaranth	<i>Amaranthus</i> sp.*
Foxtail chess	<i>Bromus madritensis</i> *
Pigweed, Lamb's quarters	<i>Chenopodium album</i> *
	<i>Chenopodium murale</i> *
Miner's lettuce	<i>Claytonia perfoliata</i>
Bind weed	<i>Convolvulus arvensis</i> *
	<i>Conyza</i> sp.*
	<i>Cyperus</i> sp.*
Redstem filaree	<i>Erodium cicutarium</i> *
Everlasting	<i>Gnaphalium luteo-album</i> *
Hare barley	<i>Hordeum murinum</i> *
Lettuce	<i>Lactuca</i> sp.*
Cheeseweed	<i>Malva parviflora</i> *
Yellow sweetclover	<i>Melilotus officinalis</i> *
Annual bluegrass	<i>Poa annua</i> *
Pomegranate tree	<i>Punica granatum</i> *

TABLE 5.6-2 (CONTINUED)
PLANT SPECIES AND WILDLIFE OBSERVED
DURING FIELD SURVEY

Common Name	Scientific Name
Common groundsel	<i>Senecio vulgaris</i> *
Prickly sow-thistle	<i>Sonchus asper</i> *
Common sow-thistle	<i>Sonchus oleraceus</i> *
Common chickweed	<i>Stellaria media</i> *
Slender fescue	<i>Vulpia bromoides</i> *

*Non-native species.

Panoche Substation. A coyote (*Canis latrans*) was observed moving through the orchard within the project area and two western toads (*Bufo boreas*) were observed in burrows just outside of the project area to the northwest. A few gopher (*Thomomys bottae*) burrows were observed, but rodent activity was minimal.

5.6.1.5 Special-Status Species

5.6.1.5.1 Plants. No special-status plant species were observed during the field survey and there are no records in the CNDDDB within the project survey area. The CNDDDB lists the following 11 special-status plant species as historically or potentially present within the project vicinity: Lost Hills crownscale (*Atriplex vallicola*), hispid bird's-beak (*Cordylanthus mollis* ssp. *hispidus*), Hall's tarplant (*Deinandra halliana*), recurved larkspur (*Delphinium recurvatum*), Temblor buckwheat (*Eriogonum temblorense*), round-leaved filaree (*Erodium macrophyllum*), Munz's tidy-tips (*Layia munzii*), Panoche pepper-grass (*Lepidium jaredii* ssp. *album*), showy madia (*Madia radiata*), San Joaquin woollythreads (*Monolopia congdonii*), and Sanford's arrowhead (*Sagittaria sanfordii*). In addition, CNPS lists pale-yellow layia (*Layia heterotricha*). These species are likely to have been extirpated from the project survey area due to the conversion of native vegetation to intensive agriculture. Few native plant species were observed within the project area and these species are not expected to occur in the project study area.

5.6.1.5.2 Wildlife. No special-status wildlife species were observed during the field survey and there are no records in the CNDDDB within the project survey area. The CNDDDB lists the following 22 sensitive wildlife species as historically present and potentially occurring in the project vicinity: Ciervo aegilian scarab beetle (*Aegialia concinna*), tricolored blackbird (*Agelaius tricolor*), San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), silvery legless lizard (*Anniella pulchra pulchra*), short-eared owl (*Asio flammeus*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), San Joaquin dune beetle (*Coelus gracilis*), giant kangaroo rat (*Dipodomys ingens*), western pond turtle (*Emys* (=Clemmys) *marmorata*),

California horned lark (*Eremophila alpestris actia*), western mastiff bat (*Eumops perotis californicus*), blunt-nosed leopard lizard (*Gambelia sila*), Morrison's blister beetle (*Lytta morrisoni*), Tulare grasshopper mouse (*Onychomys torridus tularensis*), San Joaquin pocket mouse (*Perognathus inornatus inornatus*), California horned lizard (*Phrynosoma coronatum frontale*), bank swallow (*Riparia riparia*), American badger (*Taxidea taxus*), giant garter snake (*Thamnophis gigas*), and San Joaquin kit fox, (*Vulpes macrotis mutica*). Most of these sensitive species records are located within the special environmental areas discussed in the next section and are not expected to occur in the project study area due to lack of suitable habitat. Only a few sensitive wildlife records are located within agricultural areas in the project vicinity and thus have a low potential to occur in the project area. These sensitive species include Swainson's hawk, San Joaquin kit fox, California horned lark, Tulare grasshopper mouse, short-eared owl, and blunt-nosed leopard lizard. These special-status species that have a low potential to occur in the project survey area are discussed further below and listed in Table 5.6-1.

Many sensitive plant and animal species in the southern San Joaquin valley occupy the same habitats: desert scrub, chenopod scrub, subshrub scrub, grassland, and alkali playa. These rare habitats represent a unique area of endemism in California. More endemic vertebrate species co-occur in the San Joaquin Valley than anywhere comparable in the continental United States (U.S. Fish and Wildlife Service [USFWS], 1998). Farming, urbanization, land reclamation, pest control, and other human disturbance have eliminated up to 95 percent of the habitat that once dominated the region, and many of the plants and animals that once ranged widely throughout the southern San Joaquin Valley have been decimated, and now only occur in a few scattered populations in the remaining natural areas.

Blunt-nosed Leopard Lizard. The blunt-nosed leopard lizard lives in grassland and scrub habitats in the southern San Joaquin Valley. Blunt-nosed leopard lizards eat mostly insects, but opportunistically consume smaller lizards, including young leopard lizards. Leopard lizards are polygamous, with one male mating with several females, and eggs and young are produced during summer and early fall. Predators include snakes, birds, and carnivorous mammals, including the San Joaquin kit fox. Primary threats to the blunt-nosed leopard lizard include habitat fragmentation, disturbance, and destruction. The blunt-nosed leopard lizard is listed as endangered by both the federal government and the State of California (USFWS, 1998).

The nearest CNDDDB record of blunt-nosed leopard lizard is 2.66 miles southwest of the project area in the Tumey Hills, last seen there in 1979. There are several other records in the project vicinity and the last observation documented in the area was in 1993 in a grassland area in the vicinity of Panoche Road at Silver Creek and San Benito/Fresno County Line.

Swainson's Hawk. The Swainson's hawk forages in open country and nests in adjacent tall trees, usually near water. Swainson's hawks eat small rodents and grasshoppers. These

hawks often nest in valley oaks and cottonwoods, and are considered among the species that are most threatened by destruction of riparian habitat in the Sacramento and San Joaquin Valleys. Swainson's hawks are divided into several groups based on nesting and wintering range. Most hawks occur in California in two populations, one in the Great Basin and one in the Sacramento and San Joaquin Valleys. Some Swainson's hawks migrate to Argentina, where they spend the Austral summer foraging on grasshoppers laden with DDT and other pesticides, but most Sacramento and San Joaquin Valley birds only fly as far south as Mexico, where they do not run such a high risk of pesticide poisoning. The major threat to Swainson's hawks in California is loss of habitat, including both open habitats used for foraging as well as loss of individual trees used for nesting. Swainson's hawks are listed as threatened by the State of California (Peeters, 2005).

The nearest CNDDDB record of Swainson's hawk to the project area is 5.24 miles north of the project area along the California Aqueduct. The last official documentation was in 2005 in a nest tree located on the aqueduct's eastern embankment.

Short-eared Owl. The short-eared owl is a California species of concern that lives in grasslands, shrublands, and marshes. This owl nests on the ground and requires dense vegetation for nest concealment. Short-eared owls are very rare nesting birds in the San Joaquin Valley, but are occasionally recorded as wintering birds. Short-eared owls are primarily threatened by destruction of nesting habitat (<http://www.delta.dfg.ca.gov/gallery/shearowl.asp>).

The nearest CNDDDB record of short-eared owl to the project area is 5.75 miles southeast of the project area approximately 4 miles southeast of Manning Avenue exit off Interstate 5. It was last recorded in 1993 in non-native grassland and cultivated weedy fields.

Horned Lark. The horned lark is a bird of shortgrass prairies, seashores, agricultural fields, sparse brushlands, deserts, and other open habitats throughout North America. In California, the horned lark may be common in grazed pastures, bare fields, and other agricultural settings, but nests are extremely vulnerable to destruction from agricultural equipment or trampling. In addition, loss of habitat is a considerable threat to this species. Horned larks eat mainly seeds, but will also eat insects during the breeding season. This is the only true lark native to the Americas. The horned lark is a California species of concern due to widespread, long-term population declines in the state (<http://www.mbr-pwrc.usgs.gov/bbs/grass/a4740.htm>).

The nearest CNDDDB record of horned lark to the project area is 8.9 miles southeast of the project area east of Interstate 5 and Mountain View Avenue at Panoche Junction in non-native grassland agricultural fields. It was last observed in 1992.

Tulare Grasshopper Mouse. The Tulare grasshopper mouse lives in arid grasslands, shrublands, and alkali sink habitats in the San Joaquin Valley. Grasshopper mice are

carnivorous, eating scorpions, beetles, grasshoppers, pocket mice, western harvest mice, lizards, and frogs, with some seeds taken when there is no other food source available. Young are born in the late spring and summer, and both parents care for the young. Grasshopper mice are territorial, and the males will produce a loud scream to warn other mice that the territory is occupied. Predators of grasshopper mice include badgers, San Joaquin kit foxes, coyotes, and barn owls. Primary threats to Tulare grasshopper mice include habitat destruction and fragmentation as well as pesticide use. This species is currently considered a federal Species of Concern (USFWS, 1998).

The nearest CNDDDB record of Tulare grasshopper mouse to the project area is 1.22 miles northwest of the project area along Panoche Creek. It was last recorded in 1918 at this location. There are other recorded observations in the project vicinity, the most recent being in 1955 in the Tumey Hills. Given the dates of detection, this species is likely extirpated from the project vicinity where native vegetation is lacking.

San Joaquin Kit Fox. The San Joaquin kit fox historically ranged throughout the San Joaquin Valley from Contra Costa County in the north to northern Santa Barbara county in the south. Currently the kit fox still has a wide distribution, however kit fox numbers are greatly reduced and populations are isolated from one another. Kit foxes primarily live in grassland and to a lesser extent, shrub and agricultural habitats. Kit foxes predominantly eat rodents, ground squirrels, rabbits and hares, and ground-nesting birds. Kit fox pups are born in late winter and early spring, and the male provides most of the food for the female while she is nursing. Kit foxes change dens frequently, and often enlarge existing ground squirrel burrows in order to make new dens. Predation or competitive exclusion of kit foxes may occur in the presence of coyotes, introduced red foxes, domestic dogs, bobcats, and large raptors. Human threats to kit fox include destruction of habitat, habitat degradation, predator and pest control programs, and accidents caused by proximity to humans such as electrocution, roadkills, and suffocation from accidental burial in dens. Finally, natural factors such as drought, flooding, and rabies cause a significant percent of kit fox deaths. The San Joaquin kit fox is currently listed as an endangered species by both the federal government and the State of California (USFWS, 1998).

The nearest CNDDDB record of San Joaquin kit fox to the project area is 2.2 miles west of the project area along Panoche Creek in the Tumey Hills west-southwest of the intersection of Interstate 5 and Panoche Road. It was also seen 7.5 miles southeast of the project area along a drainage ditch in a recently cultivated field along the western embankment of the California Aqueduct in 1997. It was last recorded in the project vicinity in 1999.

5.6.1.6 Special Environmental Areas in the Project Vicinity

Special Environmental Areas within the project vicinity (the nearest of which is approximately 4.2 miles away) include Tumey Hills, Panoche Hills, Ciervo Hills, and

Monocline Ridge west of the project area. In addition, Mendocino Lake along the San Joaquin River is approximately 15 miles to the east of the project area. Most of the special-status species records are in these areas. These areas are shown on Figure 5.6-1.

5.6.2 Environmental Consequences

Potential and expected direct and indirect impacts to biological resources are discussed below. Significant impacts are those that would involve the loss of a sensitive plant or wildlife species, or degradation of their habitat. The project would have significant impacts to vegetation and wildlife if it would:

- Cause a fish or wildlife population to drop below self-sustaining levels (California Environmental Quality Act [CEQA] Guidelines, Section 15065 (a))
- Threaten to eliminate a plant or animal community (CEQA Guidelines, Section 15065 (a))
- Substantially affect, reduce the number, or restrict the range of unique, rare, or endangered species of animal or plant, or the habitat of the species (CEQA Guidelines, Section 15065 (a), Appendix G (c), Appendix I (II.4.b) and (II.5.b))
- Substantially diminish or reduce habitat for fish, wildlife, or plants (CEQA Guidelines, Section 15065 (a), Appendix G (t))
- Interfere substantially with the movement of resident or migratory fish or wildlife species (CEQA Guidelines, Appendix G (d))
- Change the diversity of species, or number of any species of plants (including trees, shrubs, grass crops, and aquatic plants) or animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects) (CEQA Guidelines, Appendix I (II.4.1) and (II.5.a))
- Introduce new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species (CEQA Guidelines, Appendix I (II.4.c) and (II.5.c))
- Deteriorate existing fish or wildlife habitat (CEQA Guidelines, Appendix I (II.5.d))
- Conflict with any regional Habitat Conservation Plans (HCPs)

The above criteria are used to evaluate the proposed project's impacts to plant communities and wildlife. The potential impacts associated with the construction and operation of the PEC are discussed below.

5.6.2.1 PEC Site

The proposed project would not result in significant impacts to biological resources because it would not:

- Cause a fish or wildlife population to drop below self-sustaining levels
- Threaten to eliminate a plant or animal community
- Substantially affect, reduce the number, or restrict the range of unique, rare, or endangered species of animal or plant, or the habitat of the species
- Substantially diminish or reduce habitat for fish, wildlife, or plants
- Interfere substantially with the movement of resident or migratory fish or wildlife species
- Change the diversity of species, or number of any species of plants (including trees, shrubs, grass crops, and aquatic plants) or animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects)
- Introduce new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species
- Deteriorate existing fish or wildlife habitat
- Conflict with any regional HCPs

Less-than-significant impacts associated with the proposed project construction and operations are discussed further below.

5.6.2.1.1 Site Preparation and Construction Impacts. The proposed project includes the installation of four (4) general electric LMS100 natural gas-fired combustion turbine generators (CTGs), emissions control equipment, one cooling tower, and process water treatment equipment and other associated equipment. Construction of these new facilities, including site grading, would not impact plant species because the site is void of native vegetation; however, the site is used by common native wildlife species, particularly birds, for breeding and foraging. The trees within the PEC that would be utilized by birds for breeding and foraging will be removed once the agricultural production of the trees is complete and before the breeding bird season. As long as tree removal is performed outside of the breeding bird season, no significant impacts to wildlife are anticipated. Some individuals of common terrestrial wildlife species, such as western toad, may be adversely affected by heavy equipment or vehicles in the construction area. This impact is considered adverse, but not significant due to the relatively small area affected.

Air Emissions and Noise. Increase in air emissions (Section 5.2) and noise (Section 5.12) as a result of the construction of the proposed power plant are not expected to cause significant impacts to wildlife. The project survey area provides limited habitat for wildlife due to high agricultural use. Most of the wildlife observed at the site are species that are often found in disturbed or developed areas and are expected to adapt to the new noise levels and air emissions.

5.6.2.1.2 Operations and Maintenance Impacts. Potential impacts to biological resources as a result of the operations and maintenance associated with the proposed project include air emissions, noise, and collision hazards. These potential impacts are discussed further below.

Air Emissions. The operational sources of emissions associated with the proposed PEC include four turbine stacks which will generate emissions from the combustion of natural gas, a stack for the firewater pump engine, and the cooling tower. Impacts to wildlife in the area as a result of these emissions are less than significant because the common wildlife that occurs in the vicinity of the project area is expected to adapt to these conditions. Modeled ground-level concentrations of criteria air pollutants, including particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), volatile organic compounds (VOCs), and carbon monoxide (CO) that would be emitted or form from emissions at the proposed PEC site are below levels that would cause violations of the ambient air quality standards or contribute significantly to existing violations (see Section 5.2, Air Quality). Significance levels for air emissions along with ambient air quality standards are set to protect human health and ecosystems. Since native vegetation is lacking within a one-mile radius of the proposed plant site, no impacts to native vegetation associated with air emissions and subsequent ground deposition are anticipated. Apricot and pomegranate orchards in the area are not expected to have a detectable reduction in growth or significant visible damage from salt deposition.

In the modeling analysis for the proposed PEC site, nitrogen or sulfur deposition was not modified, except in the nearest Class 1 area, which is required. However, a very crude estimate of the maximum deposition of nitrogen and sulfur near the project site was determined by multiplying the maximum model-predicted annual average concentrations of NO₂ and SO₂ by an approximate deposition velocity of 0.02 meter/sec and separating out the elemental nitrogen and sulfur components. The results show that the maximum deposition levels adjacent to the facility would be 0.35 kg nitrogen per hectare per year and sulfur deposition would be 0.47 kg sulfur per hectare per year. Maximum deposition rates due to the PEC operational emissions were conservatively calculated from the predicted peak air pollutant concentrations, and were found to be at nearly undetectable levels within 1,000 feet of the site (see Figure 5.6-3). Multiple photochemical reactions must take place for the gaseous nitric acid, nitrogen oxides, and ammonia from the project stacks to convert to aerosols that may be deposited on the ground. Worst-case-scenario models assume that these reactions will occur within the stack, when in fact they will take minutes or hours to occur within the atmosphere, by which time the plume would have dispersed and deposition would be further reduced.

Noise. The existing Panoche Substation and Interstate 5 generate some noise near the proposed PEC site; however, most of the vicinity within the project area is agricultural and noise levels are minimal. The PEC would generate a greater level of noise than currently exists in the project area; however, the increase in noise levels is less than 65 decibels, "A"

scale (dBA) and there are no sensitive wildlife receptors. The potential impacts are considered less than significant because the area is already disturbed by intense agricultural use.

Collision Hazards. The proposed four 90-foot-tall turbine stacks associated with the PEC may present a collision hazard for birds. There is also a 17-foot-tall (4 feet above a 13-foot-tall building) stack for the firewater pump engine and the cooling tower height is 60 feet. The transmission line structures will be 75 feet tall, which includes a 15-foot-high grounding mast. Birds that would most likely be affected include migrating waterfowl and other species and some migratory song birds that tend to migrate at night. Bright lights on these tall structures may be an attractive nuisance for certain migrating birds. Fog or low cloud cover can further add to the problem. The exhaust stacks will not be lighted because under FAA guidelines lighting of 90 foot stacks is not necessary for aviation safety. Since the area has low quality habitat for birds, the collision hazards in the area of the PEC site are anticipated to be low and less than significant.

5.6.2.1.3 Impacts on Special-status Species. No federally-listed or state-listed threatened or endangered species are expected to occur in the project study area due to lack of suitable habitat, so no impacts as a result of the proposed project are anticipated. Most of the special-status species more recently reported are located near the Tumey Hills at least 4.2 miles from the project area.

5.6.2.1.4 Impacts to Wildlife Corridors. Substantial wildlife movement through the area is lacking and the project area is not a significant wildlife corridor, so no significant impacts to wildlife movement are expected.

5.6.2.2 Parking, Laydown, and Access Road

The proposed parking and laydown area and access road is within the same orchard, so impacts associated with construction and operations are expected to be the same as those discussed for the PEC. No impacts to special-status species are expected and less-than-significant impacts may occur to common wildlife species in the area.

5.6.2.3 Cumulative Impacts

The purpose of the cumulative impacts discussion for the proposed project is to:

- Identify past, present, and reasonably foreseeable actions within the project vicinity that could affect the same resource(s) as the PEC
- Determine if impacts of the PEC and the other actions would overlap in time or geographic extent

- Determine if the impacts of the proposed project would interact with, or intensify, the impacts of other actions
- Determine if this AFC overlaps another existing or planned AFC
- Identify any potentially significant cumulative impacts

Projects that could potentially contribute to cumulative impacts with the PEC are those within the same geographic area of influence. For this cumulative impact assessment, the area of influence is within a 5-mile radius of the PEC. In addition, projects or proposed projects with potential for regional significance are also included in the analysis. Information was gathered on projects that either: 1) have submitted an application for required approvals and permits; 2) have been previously approved and may be implemented in the near future; or 3) are contemplated and reasonably anticipated, but have not been formally proposed. Information for the cumulative impacts assessment was obtained primarily through personal communications. In addition, information from the internet was reviewed. The CEC and County of Fresno also provided information. Table 5.18-1 in Section 5.18 (Cumulative Impacts) shows a list of potential projects considered in the cumulative impact assessment and the timeframe for these projects. In summary, this list includes three potential projects.

No cumulative impacts of significance are anticipated.

5.6.3 Avoidance and Minimization Measures

In order to avoid and minimize impacts to common wildlife and any potential wildlife species, the following stipulations must be implemented:

- No tree removal during the breeding bird season (February 1 to August 31).
- Any existing raptor nests near the project area should be removed during the non-breeding season to minimize potential for nesting in the same location the following year.
- Pre-construction survey shall be conducted for any nesting raptor species.
- In order to minimize trapping of common wildlife, set up fences around construction zones and relocate any trapped wildlife. Fence areas and trenches should be checked regularly by a biological monitor to rescue and relocate any trapped animals.
- Provide biological orientation training for workers onsite to educate them on procedures for minimizing impacts to common wildlife species and any rare occurrences of special-status species that have a low potential to occur in the project area.
- An approved, designated biologist shall implement the above measures.

5.6.4 Mitigation Measures

There are no mitigation measures proposed for biological resources because native vegetation is lacking and special-status species are not expected to occur in the project area.

5.6.5 Applicable Laws, Ordinances, Regulations, and Standards (LORS)

LORS that are applicable or potentially applicable for biological resources associated with the proposed project are discussed below. Table 5.6-3 lists all applicable LORS. Construction and operation associated with the proposed project will adhere to the LORS pertinent to biological resources.

5.6.5.1 Federal Authorities and Administering Agencies

5.6.5.1.1 Endangered Species Act of 1973: 16 USC Section 1531 *et seq.*; 50 CFR Parts 17 and 222. The Endangered Species Act provides for the protection of threatened or endangered plants and animals and their determined critical habitats. The USFWS is the agency responsible for administering the act, designating critical habitat, and determining if a species should have a change in listing status. The PEC does not impact any federally-listed threatened or endangered plants or animals or their designated critical habitats and so the PEC will not violate the Endangered Species Act.

5.6.5.1.2 National Environmental Policy Act: 42 USC Section 4321 *et seq.* The National Environmental Policy Act (NEPA) requires an evaluation of the environmental impacts of projects taking place on federal lands or receiving federal funding. The USFWS is the administering agency for the above authority. Evaluation determined that there are no impacts to biological resources. The PEC is in compliance with NEPA.

5.6.5.1.3 Migratory Bird Treaty Act: 16 USC Sections 703 – 711; 50 CFR Subchapter B. The Migratory Bird Treaty Act protects most native birds, their eggs, and their nests, and prohibits any taking not in accordance with federal regulation. The USFWS is responsible for administering this Act. Because the project will not result in the deaths of birds or the destruction of any active nests, the PEC will not violate the Migratory Bird Treaty Act.

5.6.5.1.4 Fish and Wildlife Coordination Act: 48 Stat. 401, amended; 16 USC 661 *et seq.* The Fish and Wildlife Coordination Act requires all federal agencies to coordinate with the USFWS to preserve fish and wildlife when implementing federal actions. The USFWS is responsible for administering this Act. Because there are no impacts to biological resources, the PEC will comply with this Act.

5.6.5.1.5 Clean Water Act of 1977: 33 USC Section 1251 – 1376; 30 CFR Section 330.5(a)(26). The Clean Water Act protects wetlands, regulates discharges of pollutants, requires set water quality standards for individual pollutants, and provides a framework for

**TABLE 5.6-3
LORS FOR BIOLOGICAL RESOURCES**

AFC Section	Authority	Administering Agency	Requirements/Compliance
Federal			
Section 5.6.4.1	Endangered Species Act of 1973; 16 USC 1531 et seq.; 50 CFR Parts 17 and 222.	USFWS	Protection and management of federally listed threatened or endangered plants and animals and their designated critical habitats (terrestrial and avian species). Section 7 Endangered Species Act consultation with USFWS (or Section 10A)
Section 5.6.4.1	National Environmental Policy Act; 42 USC 4321 et seq.	USFWS	Analysis of impacts of Federal action
Section 5.6.4.1	Migratory Bird Treaty Act; 16 USC 703-711; 50 CFR Subchapter B.	USFWS	Protection of migratory birds
Section 5.6.4.1	Fish and Wildlife Coordination Act; 16 USC 661-666	USFWS	Conservation of fish and wildlife
Section 5.6.4.1	Clean Water Act of 1977; 33 USC 1251-1376; 30 CFR 330.5(a)(26)	USACOE and the RWQCB	Protection of wetlands and limiting of thermal discharges to the marine environment
State			
Section 5.6.4.2	California Endangered Species Act of 1984; California Fish and Game Code 2050-2098.	CDFG	Consultation Requirement
Section 5.6.4.2	California Species Preservation Act of 1970; California Fish and Game Code 900-903.	CDFG	Protection and enhancement of the birds, mammals, fish, amphibians, and reptiles of California
Section 5.6.4.2	California Fish and Game Code 4700 and 5515	CDFG	No taking of mammals listed as fully protected
Section 5.6.2.1 and 5.6.5.2	California Fish and Game Code 3503.	CDFG	No taking or possessing of the nests or eggs of birds
Sections 5.6.2.2, 5.6.2.3, and 5.6.5.2	CEQA; California Public Resources Code 21000 et seq.	CEC	Protection of environment
Section 5.6.4.2	California PRC 25523(a); 20 CCR 1752, 1752.5, 2300-2309; Chapter 2, Subchapter 5, Article I, Appendix B, Part (I)	CEC	Protection of environmental quality

**TABLE 5.6-3 (CONTINUED)
LORS FOR BIOLOGICAL RESOURCES**

AFC Section	Authority	Administering Agency	Requirements/Compliance
Local			
Section 5.6.4.3	Opens Space Element and Conservation Element of the County of Fresno General Plan	County of Fresno Economic and Development Department	Ensure that proposed development projects demonstrate a high degree of compatibility with any threatened or endangered species and sensitive biological resources

permitted pollutant discharge from a point source. The administering agencies for the Act are the USACOE and the Regional Water Quality Control Board (RWQCB). Because there are no impacts to biological resources, the PEC will not be in violation of this Act.

5.6.5.2 State Authorities and Administering Agencies

5.6.5.2.1 California Endangered Species Act of 1984: California Fish and Game Code Sections 2050 – 2098. The California Endangered Species Act provides for the protection and management of plant and animal species listed as threatened or endangered, or designated as candidates for such listing. This Act requires consultation between the CDFG and other state agencies to ensure that projects do not jeopardize the continued existence of threatened or endangered species or habitats essential for the continued survival of any threatened or endangered species. The administering agency for this act is the CDFG. Because there are no impacts to any species listed under this Act, the PEC will not be in violation of this Act.

5.6.5.2.2 California Species Protection Act of 1970: California Fish and Game Sections 900-903. The California Species Protection Act includes provisions for the protection and enhancement of the birds, mammals, fish, amphibians, and reptiles of California. The administering agency for this Act is the CDFG. Because there are no impacts to biological resources, the PEC will comply with this Act.

5.6.5.2.3 California Fish and Game Code Section 3503. This code section prohibits the taking and possessing of bird eggs and nests. The administering agency for this is the CDFG. Because there will be no disturbance to nesting birds, the PEC will be in compliance with this law.

5.6.5.2.4 California Fish and Game Code Section 3511, Section 4700, Section 5050 Section 5515. This code section prohibits the taking of birds, mammals, reptiles, and fish listed as fully protected. The administering agency for these is the CDFG. Because there are

no listed birds, mammals, reptiles, or fish in the vicinity of the project site, the PEC will be in compliance with this law.

5.6.5.2.5 CEQA, Public Resources Code Section 21000 et seq. The CEQA provides for protection of the environment in the state of California. The administering agency for the above authority with regards to this project is the California Energy Commission (CEC). Because there are no natural resources at the project site, the PEC is in compliance with the California Environmental Quality Act.

5.6.5.2.6 California Public Resources Code Section 25523(a): 20 CCR Sections 1752, 1752.5, 2300 – 2309, and Chapter 2, Subchapter 5, Article I, Appendix B, Part (i). These code sections require the CEC to protect environmental quality. The administering agency for the above sections is the CEC with comment by the CDFG. Because there are no rare or endangered species at the project site, the PEC will be in compliance with these code sections.

5.6.5.3 Local Authorities and Administering Agencies

The County of Fresno General Plan open space and conservation elements addresses goals and policies related to natural resources. The *Conservation Element* addresses the conservation, development, and use of natural resources including water, forests, soils, rivers, and mineral deposits. Overlapping the Conservation and Safety Elements, the *Open Space Element* details plans and measures for preserving open space for: protection of natural resources such as wildlife habitat; the managed production of resources such as agriculture and timberland; outdoor recreation such as parks, trails, and scenic vistas; and public health and safety such as areas subject to geologic hazards, flooding, and fires. (County of Fresno, 2000).

The Natural Resources component has three main goals (County of Fresno, 2000):

1. To help protect, restore, and enhance habitats in Fresno County that support fish and wildlife species so that populations are maintained at viable levels. Policies in this section seek to protect natural areas and to preserve the diversity of habitat in the county.
2. To conserve the function and values of wetland communities and related riparian areas throughout Fresno County while allowing compatible uses where appropriate. Policies in this section seek to protect riparian and wetland habitats in the county while allowing compatible uses where appropriate.
3. To preserve and protect the valuable vegetation resources of Fresno County. Policies in this section seek to protect native vegetation resources primarily on private land within the county.

The Mendota Wildlife Area just south of the San Joaquin River is designated as open space. The administering agency for the County of Fresno is the Planning and Resources Development Department. The PEC is in compliance with these goals and associated policies because it does not cause significant impacts to natural resources.

5.6.5.4 Agencies and Agency Contacts

There are no applicable permits related to biological resources.

5.6.5.5 Applicable Permits

There are no applicable permits related to biological resources.

5.6.6 References

California Department of Fish and Game. 2006a. Natural Diversity Database (CNDDDB).

2006b. Central Valley Bay-Delta Branch website <http://www.delta.dfg.ca.gov/gallery/shearowl.asp>

California Energy Commission. 2000. Rules of Practice and Procedure and Plant Site Certification Regulations.

California Native Plant Society. 2006. Rare Plant Database.

County of Fresno. 2000. Fresno County General Plan. Conservation and Open Space Element.

Hans Peeters and Pam Peeters. 2005. *Raptors of California*. University of California Press, Berkeley and Los Angeles, California.

Hickman, J. C. 1993. The Jepson manual: higher plants of California. University of California Press, Berkeley and Los Angeles. 1400pp.

JRP Historical Consulting. 2006. *Historical Resources Inventory and Evaluation Report for the Panoche Energy Center*.

The North American Breeding Bird Survey. 2006. <http://www.mbr-pwrc.usgs.gov/bbs/grass/a4740.htm>

U.S. Fish and Wildlife Service. 1998. *Recovery plan for upland species of the San Joaquin Valley, California*. Region 1, Portland, OR. 319 pp.

Date

DATA ADEQUACY WORKSHEET

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.	5.6.1, 5.6.1.2, 5.6.2 5.6.2.1, 5.6.2.1.1, 5.6.2.1.2, 5.6.2.1.3, 5.6.2.1.4, 5.6.2.2, 5.6.2.3, 5.6.3, 5.6.4		
Appendix B (g) (13) (A)	A regional overview and discussion of biological resources, with particular attention to sensitive biological resources near the project, and a map at a scale of 1:100,000 (or some other suitable scale) showing their location in relation to the project.	5.6, 5.6.1, 5.6.1.1, 5.6.1.2, 5.6.1.3, 5.6.1.4, Table 5.6-1, Table 5.6-2, 5.6.1.5, 5.6.1.5.1, 5.6.1.5.2, 5.6.1.6		
Appendix B (g) (13) (B)	A discussion and detailed maps at a scale of 1:6,000, of the biological resources at the site of the proposed project and related facilities, and in areas adjacent to them, out to a mile from the site and 1000 feet from the outer edge of linear facility corridors. Include a list of the species actually observed and those with a potential to occur. The discussion and maps shall address the distribution of community types, denning or nesting sites, population concentrations, migration corridors, breeding habitats, and the presence of sensitive biological resources.	5.6 5.6.1 5.6.1.1 5.6.1.2 5.6.1.3 5.6.1.4 Table 5.6-1 Table 5.6-2 5.6.1.5 5.6.1.5.1 5.6.1.5.2 5.6.1.6		

Adequacy Issue:

Adequate

Inadequate

DATA ADEQUACY WORKSHEET

Revision No.

Date

Technical Area:

Biological Resources

Project:

Technical Staff:

Project Manager:

Docket:

Technical Senior:

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (C)	A description of all studies and surveys used to provide biological information about the project site, including seasonal surveys and copies of the California Department of Fish and Game's Natural Diversity Data Base Survey Forms, "California Native Species Field Survey Forms", and "California Natural Community Field Survey Forms", completed by the applicant. Include the dates and duration of the studies, methods used to complete the studies, and the names and qualifications of individuals conducting the studies.	5.6.1 5.6.1.1 Appendix B		
Appendix B (g) (13) (D)	A discussion of all permanent and temporary impacts to biological resources from site preparation, construction activities, and plant operation. Discussion of impacts must consider impacts from cooling tower drift, and from the use and discharge of water during construction and operation. For facilities which use once-through cooling or take or discharge water directly from or to natural sources, discuss impacts resulting from entrainment, impingement, thermal discharge, effluent chemicals, type of pump (if applicable), temperature, volume and rate of flow at intake and discharge location, and plume configuration in receiving water. A discussion of the following:	5.6.2 5.6.2.1 5.6.2.1.1 5.6.2.1.2 5.6.2.1.3 5.6.2.1.4 5.6.2.2 5.6.2.3 5.6.3 5.6.4		
Appendix B (g) (13) (E)	A discussion of the following:			
Appendix B (g) (13) (E) (i)	All measures proposed to avoid and/or reduce any adverse impacts;	5.6.2.1.1, 5.6.3		
Appendix B (g) (13) (E) (ii)	All measures proposed to mitigate any adverse impacts, including any proposals for off-site mitigation; and	5.6.4		
Appendix B (g) (13) (E) (iii)	Any educational programs proposed to enhance employee awareness in order to protect biological resources.	5.6.3		

Adequacy Issue:

Adequate

Inadequate

Biological Resources

Project:

Docket:

Revision No.

Technical Staff:

Technical Senior:

Date

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (F)	A discussion of compliance and monitoring programs proposed to ensure the effectiveness of mitigation measures incorporated into the project.	5.6.3 5.6.4		
Appendix B (g) (13) (G)	A discussion of native fish and wildlife species of commercial and/or recreational value that could be impacted by the project.	5.6.2.1		
Appendix B (g) (13) (H)	For purposes of this section, sensitive biological resources are one of the following:			
Appendix B (g) (13) (H) (i)	Species listed under state or federal Endangered Species Acts;	Table 5.6-1, 5.6.1.5.1, 5.6.1.5.2		
Appendix B (g) (13) (H) (ii)	Resources defined in sections 1702 (q) and (v) of Title 20 of the California Code of Regulations; and			
Appendix B (g) (13) (H) (iii)	Species or habitats identified by legislative acts as requiring protection.	Table 5.6-1, 5.6.1.5, 5.6.1.5.1, 5.6.1.5.2, 5.6.2.1.3		
Appendix B (h) (1) (A)	Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, and permits applicable to the proposed project, and a discussion of the applicability of each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed;	Table 5.6-3		
Appendix B (h) (1) (B)	Tables which identify each agency with jurisdiction to issue applicable permits and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.	Table 5.6-3		

Adequacy Issue:

Adequate

Inadequate

Technical Area:

Biological Resources

Project Manager:

Revision No.

Date

Technical Staff:

Technical Senior:

DATA ADEQUACY WORKSHEET

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (h) (2)	A discussion of the conformity of the project with the requirements listed in subsection (h)(1)(A).	5.6.5.2, 5.6.5.2.1, 5.6.5.2.2, 5.6.5.2.3, 5.6.5.2.4, 5.6.5.2.5, 5.6.5.2.6, 5.6.5.3		
Appendix B (h) (3)	The name, title, phone number, and address, if known, of an official within each agency who will serve as a contact person for the agency.	5.6.5.4		
Appendix B (h) (4)	A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.	5.6.5.5		